ADDRESS

—OF—

Eugene Davenport, LL. D.

Dean of the College of Agriculture

—OF THE—

University of Illinois

—AT—

THE DEDICATION OF THE

Hall of Agriculture

—OF THE—

University of Maine

Jan. 20, 1909

Address of Eugene Davenport, LL. D.

Agriculture is a remarkable occupation for a number of significant reasons:

1. It engages the time and attention of half our people and it will always absorb the lives and energies of a very large proportion of the race.

2. It is the only considerable calling in which the home is situated in close connection and in intimate contact with the heart of the business so that all members of the family, men, women and children alike, live in the atmosphere of the occupation and each finds some useful part to do as a contribution to the general effort; that is, agriculture is not only an occupation but a mode of life as well, and whatever touches to uplift or to depress the one is bound to powerfully react upon the other.

3. The conditions of country life are peculiar in their contribution to health, their stimulus to personal initiative and their fostering influence upon that spirit of individualism upon which rest our free institutions and our democratic government. The country is a good place in which to be born.

4. The business of farming, dealing as it does at every step with the subtlest laws of nature, is capable of infinite improvement and of indefinite development as soon and as rapidly as the findings of science are applied to its affairs.

5. The occupation is, and from the nature of the case must always remain, permanent because all men forever must subscribe to the decree of nature and eat, for food is the fuel that feeds the human engine, and in the last analysis our future development as a race will be conditioned upon our success in providing an assured and independent food supply, abundant and suitable for a highly developed and always advancing civilization.

6. There is, therefore, a public as well as a private side to this matter of agricultural development; and it is because of this public and exceptional interest in this particular occupation that we have established and maintained at general expense in every State of the Union, institutions whose business it is not only to instruct in the most advanced methods of agricultural practice, but also to conduct research through experiments by the most approved methods with a view of adding to our knowledge of the scientific facts and principles upon which further development of agriculture and of country life may be established.

In this connection it is extremely suggestive that educational history shows no other instance in which teaching and investigation have so consistently gone along together. There is none other in which the standards of the classroom and the laboratories have been so rapidly adjusted and readjusted to the dictates of experimental evidence; nor is there another instance wherein the results of research and of learning have so rapidly taken hold of the lives and activities of large masses of men in such a way as not only to notably develop their occupation but also to en-

rich and develop their own lives and conditions of living as well. In short, agricultural education with its handmaid, research, are having an effect in developing American agriculture and American farmers that is more sudden, more pronounced, more far-reaching and of wider public significance than the results of any other form of education, private or public, industrial or non-industrial that has ever yet been devised by the ingenuity or needs of man.

The principal aim of other forms of education in the past was to benefit their devotees personally without much regard to the consequences, either public or private. Not so with this form of education. Its primary purpose is the development of agriculture as a productive occupation and incidentally and necessarily of the people who live by farming. In other words, its first objective is distinctly a public one, and all other considerations are secondary and subsidiary.

Now the public is not interested in the question whether John Smith succeeds or fails at farming; indeed it does not care whether he farms at all or what he does or does not do so long as he does not become a public charge and so long as he continues to contribute some share to the public good.

But the public is interested that somebody should succeed in farming. More than that, it is interested that enough should succeed and that they should succeed well enough to operate the land to the best advantage and provide an assured food supply for all the people. Now the lands cannot be operated to the best advantage by an ignorant peasantry. Only men of good parts educated in the principles involved can handle these lands in such a way as to secure a maximum of human and animal food at the least expense and at the same time preserve their producing power against future needs.

And so it is that the aims and purposes of agricultural education and research are primarily the promotion of the public safety in the matter of a racial food supply, to which matter the education and information of individuals is an essential but subsidiary incident; which incident, however, is certain to result in producing a country population of a superior type, all of which also reacts powerfully upon the public good in matters both social and political.

In the last analysis and reduced to the lowest terms, therefore, the fundamental purpose of agricultural education and research is the development of agriculture as a productive occupation and of the agricultural people as a numerous and important part of the social and political fabric.

Development is, therefore, the central thought in educational activity along agricultural lines today and the development of American agriculture to its highest attainable estate both as a business and as a mode of life is the high purpose for which the agricultural colleges and experiment stations were founded and are supported by a far-seeing and liberal-minded public. It is profitable, and in every way highly important that we all pause a moment from time to time to gain the clearest and most comprehensive understanding possible of all that is involved in this whole matter. Accordingly, that we may all alike be intelligent and work together to a common end in so important an undertaking, I invite your attention somewhat carefully to the details of this development which may be briefly outlined under six fairly definite propositions as follows:

1. **An agriculture profitable.** The first step in the development of any business is to "make it pay." Whatever we may say about the glories of country life, and it is much; whatever the songs we sing of the free

air, the twittering birds and the blessed sunshine, and they are many; after all and before all, farming is a business, and the first and the fundamental step in its development is to put it on a paying basis. Our colleges and our experiment stations have done well, therefore, to devote their first, and up to this time, their principal efforts, to the business of increasing the profits of farming. In the past, farming was not a capitalized industry and such a thing as failure was almost impossible. From now on, however, farming is to be a capitalized occupation and failure will be relatively easy; for the new discoveries of science, while they tend to establish the business on a sounder basis, do not make it easier in the sense of better adapting it to the novice or to men of low capacity. Agriculture is rapidly becoming more difficult, calling not for less but for more, of brains, of knowledge and of executive ability as well as of capital. This is rapidly challenging the attention of the brightest men, who will be attracted into the calling about in proportion as they can feel the possibility of reasonable profits.

No business can hold the respect and the services of men of ability except it afford them a reasonable reward for what they put into it, and certainly no occupation can commend itself to ambitious young men until it offers promise of a good and reliable income.

In this connection it is most significant to note the increased respect for agriculture and the new interest in farming and in country life that commenced to spring up among all classes almost immediately upon the work of the college and station in showing how to begin to put this business on a scientific and paying basis, and it is significant, too, that we now hear less and see less of the drift from the farm to the town and that men of sound business sense and wide experience are beginning to look to the land and to agriculture not only as a safe business but in every way a desirable occupation. This is the main influence that will regulate the flow from the country to the town and hold in check the insane rush of young men cityward that we have all deplored for now these many years.

2. **An agriculture productive.** It is not enough that agriculture should be profitable. In its development it must also become in the very near future enormously productive. How pressing this point will shortly become few people are able to realize, so abundantly have the virgin soils of this country produced in the past; so boundless have been their extent and so small has our population been almost up to the present day.

A little careful consideration, however, will speedily show that conditions in this respect are to undergo a fundamental change in the very near future indeed.

Under good conditions, the human animal can double his numbers every twenty-five years. By the aid of immigration and despite the ravages of four wars, we have maintained this rate of increase in this country since the Revolution and the population of the United States doubled four times in the last hundred years. If we maintain this rate of increase for another century and something is wrong if we do not—if we maintain this rate of increase—we should have in this country an hundred years from now no less than twelve hundred millions of people, a hundred millions of whom should live in Illinois. Under these conditions not less than thirty millions should live in the State of Maine, —that is, the population of the entire United States at the time of the Civil War would then be crowded into a single one of our smaller States and within the present century.

For various reasons this ratio of increase cannot much longer be maintained, yet it is the natural rate and it tends to show us what would come about under normal conditions within a century,—and what is a century in the life history of a people?

Believe me, race suicide if it comes will be due not to a failure of the birth rate; it will be from our sheer neglect to maintain conditions that will insure food for the people. This is the form of race suicide against which we need most to protect ourselves, and it is none too soon to begin. The world has not yet learned how to feed such a population as is just ahead and before the present century is ended the largest single public issue will be that of bread.

Within the lifetime of children born today, scarcity of labor will be a matter of history, and abundance of cheap food will be a tale that is told by the gran'ther in his chimney corner dozing in his dotage. We are educating in our schools today a generation of children to live a life that we ourselves have never seen and that history does not record, and that we do not ourselves understand; and we do well if we soberly calculate what their conditions of life are likely to be and mend our methods accordingly.

We were three hundred years in getting a population of five millions of people, so slowly do numbers pile up when the base is small, whatever the ratio, but we have increased ninety millions in the last hundred years. I very well remember when our population was but thirty millions and I am no relative of Methusaleh, either. Many of you remember when it was but fifteen, but now it has reached approximately one hundred millions. With such a base and with modern conditions of life, this country can and will produce men at a rate the world has never seen. We can now produce in this country as much increased population in the next twenty-five years as we produced in the whole four hundred years since its discovery by white men, and we can produce twice as many more in the next twenty-five. In fifty years from now we shall have the population of China in this country, unless something goes wrong, and it is the business of agriculture to learn how to feed them, and feed them well. When it has learned this, it will have learned many a lesson the colleges do not now know how to teach.

We have thought but little on these things because all of our experience has been with an insufficient population and we have courted immigration as a source of labor. Had you thought of it, with our present population we can in ten years duplicate every emigrant dead or alive that ever touched this country. We have never yet been conscious of our population as far as adults are concerned, because we have had room and food and labor in superabundance. But we have never gone up against such numbers as are just ahead, the whisperings of whose coming is in the housing and teaching of our now enormous child population. When Chicago calls for eight million dollars worth of additinal public school buidings in the next two years, you hear from a tide of young humanity whose numbers and reproducing powers will make new problems for our race and for its agriculture to solve. Not the least of these will relate to the power of the land to produce food for man and the animals he has domesticated.

Aye! for the animals—there is another rub. We revel now in the luxury of animal life. Every family, on the average, has a horse, four head of cattle, four sheep and four pigs with some few millions to spare. They literally work and eat and root for us and we consume their bodies

and their body products with a prodigality that no dense population has ever yet found possible. Now animal service is an expensive luxury when food becomes costly. Animal food is approximately ten times as expensive as vegetable; that is to say, it takes ten pounds of grain to make a pound of flesh, which is no more valuable for supporting life than is any one of the ten pounds of grain that went to make it.

Our descendants will face the day when they must surrender some of this animal life as surely as they face the day of their birth, and when we consider the fact that economic nitrogen production involves leguminous plants that are fit only for animal food, we will begin to see how complicated is the problem of developing an agriculture sufficiently productive to meet coming conditions without distress.

3. **An agriculture permanent.** The conditions that have just been discussed will not be temporary and transient; they will be enduring, yes, permanent, and they must be met by a permanent agriculture—a thing the world has never yet succeeded in establishing. No race has ever yet learned to feed itself except at the expense of fertility of their own or some other country. Other races have come up against this problem and have gone down under it.

Where is Carthage today? Where is Egypt, whose civilization once flourished upon fertility brought down from the highlands of a great interior? What of Palestine, that once flowed with milk and honey and blossomed as the rose, but now supports only a miserable and straggling population of wandering Arabs? What of Babylon, amid whose "heaps" the jackal snarls where once kings held revelry and where civilization was born in the richest river valley in all the earth? What of India, where struggling millions maintain their racial existence at the cost of periodic and decimating famine relieved from other regions that have not yet met the "Great Issue"? What of China? With a population of four hundred to the square mile, it must presently either move or starve. It is pointed out as a people who have solved in some uncanny way the problem of a permanent agriculture and a permanent food supply, yet good authority says that on the highlands are regions once peopled and now abandoned, where for stretches of ten miles **no man lives.**

What of England? She is a new country, yet she long ago faced failing fertility and built fleets of ships to carry guano from the South Sea Islands, and within the recollection of men sitting here, she has exhausted these beds that the seabirds have been ages in producing. Not only that, she has brought mummies from Egypt to fertilize English soil that the Englishman might have his beef, while bread riots wage in London. So narrow is the margin on which English agriculture is maintained that good judges say that the law of primogeniture is the only fact that makes beef production still possible in England.

Our Federal Government announces the newly discovered theory that lands do not wear out, but the fact remains that large sections of Old Virginia are so worn as to be abandoned and families that once entertained presidents and foreign diplomats, now that the wheat yield has dropped to ten per cent its former magnitude, eke out the income by keeping summer boarders.

Every intelligent man knows that the old cotton and tobacco lands of the South are badly worn and have lost forever their power of spontaneous production. That great grain-growing region in southern Illinois, known locally as Egypt, was so exhausted by farming to wheat and red top hay as to be no longer able to support its population in comfort

and it turned to mining and mine props until the work of the University showed how its productive power might be restored at reasonable cost. Here was an area large enough to make ten such States as Rhode Island, exhausted so far as profitable agriculture is concerned by two generations of grain farming, until the land became in local parlance "too poor to raise a disturbance." Some of it is being rapidly restored by methods devised by the Experiment Station but the saddest fact is that the effects of soil impoverishment had in some cases gone so far as to affect the people, and they were unable to raise even the small initial cost of restoration, in which case, of course, the problem must go over to men of capital who had sojourned on more fortunate lands.

No man can study for a moment the entirely new conditions and problems that will confront our people in the immediate future without realizing that the establishment of agricultural colleges and experiment stations was the largest act of foresighted wisdom in recorded history, nor can he fail to realize that their adequate maintenance and fostering support is not only the first duty but one of the highest public privileges of the commonwealth of our day and time.

There is to be, in the very near future, a struggle for land and the food it will produce, such as the world has never yet beheld. He who knows where and how to look can see it coming. The African activity among western European nations is a part of it. It is always cheaper to move when over-population and failing fertility threaten a shortage of food—providing there is any place to move into; that is, providing we can dispossess the other party and his land is worth the contest.

However that may be as an abstract proposition, for us there is no moving. For us there are no more "new worlds." For us there is little more "Out West." Our fortune and our future, whatever they may be, are staked down on the American Continent. Literally "Here we rest," and whether we like it or not, we must devise and establish a permanent agriculture or go down in the attempt.

Our descendants will certainly be as cultured as we; they ought to be more so. Their needs surely will not be fewer or of a more modest character. Their numbers will be vastly greater and unless **we**, not **they**, can succeed in finding a permanent agriculture, the race will degenerate and end where it commenced in poverty and barbarism.

I have already pointed out that restorative and permanent systems must be established **before the people are in distress for the necessities of life.** Afterward it cannot be done. It is **we** who must discover and establish this permanent system. There is no time to be lost, for we do not yet know how to do it and a stupendous population is just upon us. It is none too soon to attack with all the scientific vigor of all the Experiment Stations of all the States this perfectly stupendous problem which will shortly bear harder upon us than upon any contemporaneous race in the world except the Hindus and the Chinese who have almost certainly delayed too long and lost their chance. European nations will be occupied for generations yet in exploiting Africa and perhaps South America and we before any other modern nation must face this issue of a permanent agriculture.

We have no right to dodge this issue now while we are few and young and wealthy. It is our own descendants whose lives and happiness we literally hold in the hollow of our hands and he who shirks that responsibility is guilty of a crime against his race beside which ordinary treason is trivial; and when we are called, as we are, to the task

of establishing if we can a permanent agriculture, it is a call of the race for a chance to live and work out its destiny.

So much for what may be called the business side of farming—an agriculture that is reasonably profitable, highly productive and certainly permanent. What now on the human side? What is the development of the farmer as a man to match the development of his business as an occupation? And so I come to the next count in our series of development.

4. **The country comfortable.** Agriculture is not only a business; it is a mode of life as well, and if it is to be successful in the latter particular it must in the end afford its devotees the same comforts of life as are attainable in other occupations. This has not hitherto been possible, but its early realization is becoming every day more promising and if the colleges and stations perform their whole duty in this direction and if they are supported by the people as they ought to be supported, then one of the earliest and most distinctive developments of our agriculture will be in creature comforts on the farm.

This development will largely take the special form of modern conveniences including labor-saving equipments in the farmhouse. The farmer has provided himself with all sorts of machinery and ingenious mechanical devices not only to cheapen production but to make the labor easier for himself, his hired help and even his animals. In the meantime his wife gets on with few improvements and with no real conveniences, living and scraping along as best she can against the day when the family shall be able to build its home in town and "have the conveniences." By modern conveniences is generally meant bath-room and toilet facilities, heat, a lighting system and running water inside the house. That is about all, but it would take a book to recite what has been sacrificed in going to town to get these things.

The farmer has abandoned his business. He has broken up his children's home. He has exposed his little ones to the unbridled dangers of the small town. He has set before them the example of idleness. He has turned his back upon the farm that has made his wealth and stripped the land of its fertility to build in the town the home to which the farm was entitled. He has stripped the country of its earnings to build up the city and add to its numbers a wholly useless and undesirable population. So common has this thing become as to excite public alarm and no one topic rings a more significant note through the findings of the Country Life Commission than the abandonment of the farm at the stage of house building.

The uselessness of all this under even **present** conditions was, I think, first called to public attention is an address by Mrs. Davenport at the Illinois Farmers' Institute at Peoria in February of last year. She had had an extensive experience on the farm and had lived a good number of years in town. With a natural mechanical instinct and some experience in building, she saw how thoroughly the conveniences and the labor of the house had been overlooked, relatively speaking, by both inventor and designer except where conditions of life, as in the city, compelled some decent attention to sanitary measures, evolving the bath-room, the toilet and the slop sink. She saw how completely the labor of the house had been left to servants in the homes of the wealthy or endured by the wife unable to afford a servant, neither of which conditions developed conveniences for performing the household labor. This comparative poverty in house equipment is also partly due to lack of attention on the part of inventors and manufacturers, all of which is trace-

able to another initial abomination—that ancient and dishonorable custom by which the husband carries the pocketbook and so often opens it only upon humiliating supplication for a share of what the wife on the farm has fairly earned.

Mrs. Davenport knew that conditions had commenced to mend themselves in certain particulars and were capable of still further improvement. Accordingly she set out to learn how far and to what extent the farm house can now be equipped not only with the so-called modern conveniences, but with still further devices for saving labor. The results of her study were given in the address already referred to and may be briefly summarized as follows:

The enterprise of the best farmers in equipping the farm with machinery has already reached the stage of the small gasolene engine for running the machinery of the barns and especially for pumping water, generally into small or elevated tanks subject to freezing, an evolution from the old and unreliable wind mill.

Beginning at this point with the gasolene engine which stands as a kind of connecting link between the machinery of the farm and that of the house, it appears that this little engine, first of all, can pump water, both hard and soft, into the Kewanee automatic system and secure a pressure of 70 pounds per square inch in air tight tanks standing in the basement or buried in the ground beyond the reach of frost. This is as good as the best city pressure and is abundant to throw water over any of the buildings, carry it into both house and barn and nearby fields and put both hard and soft water, hot and cold, on all the floors of the house. It will also run a water motor—cost, six dollars,—sufficiently powerful to operate the washing machine and do the hardest part of the hardest job about any home—all for six dollars, under pressure. This same engine can run a gasolene heated mangle with a capacity of a napkin a minute or a table cloth every six minutes. It may also operate storage battery electric light plant. Not only that—it can furnish the power for the churn and other small machinery, and last of all, it can operate a vacuum cleaner system whose installation in the private house is now entirely feasible.

Besides this, the soil absorption system will care for the waste from bath-room, laundry and slop sink as completely and as satisfactorily as the best city sewer. If economy is imperative, acetylene or gasolene may be substituted for the electric lights, or if electricity is used, the small machinery may be operated by electric motors.

This is actually being done on the farm now in many cases. A few months ago our Engineering Experiment Station issued a bulletin on electric lighting of private houses. You will be interested to know that we have had more calls for this material, which was reprinted as a circular by the Agricultural Experiment Station, than for anything ever issued by the Station, showing most significantly the direction and the drift of the public mind.

Here we have water pressure, bath and toilet room, a lighting plant, power laundry machinery, vacuum cleaner,—all that the city home can secure in the way of modern conveniences and more than can be had there, except with difficulty, for city residences commonly do not possess a source of power,—all this, as well as in the city and better.

I was amazed, optimist though I am, at the results of this investigation; at the possibilities of the independent plant; at what can be done, not in the future, but **now** in the equipment of the farm home with the conveniences of human life.

But, you will say, think of the expense! Yes, it is costly; all good things are costly. Farm machinery is costly, especially a reaper that is seldom operated ten days out of the year and lasts on the average but three years. It is all costly, but remember that we are talking now about a class of people who ride always in covered carriages, drive good horses and are able to go to town to live.

Now an entire bath-room outfit can be bought and installed for the price of a single covered buggy and it will outlast the buggy a half dozen times over. The stationary vacuum cleaner, that acme of comfort and luxury, will cost the price of a good horse or a medium team, or in portable form half as much. Yes, it is costly. The whole outfit will cost just about what a city building lot will cost in any town worth living in and not on a principal street either. In other words, the moment the farmer moves to town to secure "modern conveniences," he planks down at the outset for a building site as much money as it would take to provide all these things and more on the farm he has left behind. Then, in addition, he will need to draw generous quarterly checks for water rates, gas bills, electric lights and invest from two to three thousand additional for income to meet the extra cost of taxation.

So recently have these things been possible that they are not known among farmers generally. The farmer doesn't leave the farm because he wants to live in town. He is lost and unhappy when he gets there. He goes to secure comfort for those he loves, and for no other reason. It is the business of our colleges of agriculture to make known as widely and as rapidly as may be the modern possibilities for making the country comfortable. It is engaged in no higher or more worthy work.

Many of the choicest physical blessings are inherent in country life, such as good air, plenty of room, open sunshine, and comparative freedom from dangerously infectious diseases. Others are being rapidly added, such as the telephone, which is both better and cheaper than in the city; the rural delivery of mail by which the farms are better served than are most towns; and the consolidated secondary school by which the farmers' children will soon receive literally from the father's roof the best education in the world. When, now, we have learned to build comfortable homes for ourselves and our children, then will the country be of all places for living the most delightful and the most desirable from the greatest variety of standpoints.

5. **The country beautiful.** Time and space are all too short for saying all that ought to be said about the human side of agricultural development, but I shall steal a word and a moment to enter a plea for the country beautiful; something to please the eye and uplift the soul; something beyond the body; something that shall foreshadow here what Heaven may be hereafter.

First of all, I plead for the early evolution of a suitable country architecture: for house and barn exteriors that shall blend with the natural features of their surroundings. We build a barn on the ugliest lines that human ingenuity can devise, then go the limits by painting it red and wonder why it is so often struck by lightning.

Our houses, for the most part, are not things of the country. They are town houses, high and narrow with peaked roofs with several varieties of gingerbread gimcrackery, loaded everywhere on cornice and porch. They look as if they had been pulled up by the roots out of the nearest town and stuck down in the country, where they are about as much out of place as painted scenery at Niagara gorge, tin palms in a hotel corridor, arti-

ficial flowers in a bouquet of American Beauty roses:—as much out of place as a galvanized iron lion or a cast iron flunky for a hitching post in front of a city residence.

Let the country house be built on good lines within and without. Let it be generously and hospitably big, with broad low roof and wide projection. Let it be surrounded by porches wide and deep, and inside let the rooms be generous and the stairways broad. Let the colors everywhere be strong but soft, and outside let it blend into its setting of lawn and trees as if this home had been builded in a spot which Nature had made expressly for the purpose where a family might live and where children might be born and grow up and go out into the world to engage in and succeed in many things, but never to forget the childhood home of blessed memory.

All this is a sentimental side of our business, I know, but after all, sentiment is the strongest thing in the world, and you and I may not know the racial asset of a dozen generations born and reared in such homes as may now be established on the farm.

It is traditional to assume a plain, hard life, destitute of comforts for the family on the farm. In this we do err. Nothing is farther from the essential. We cannot build and maintain a permanent agriculture on that proposition. In such an assumption we confuse the necessary hardships of the pioneer with the possibilities of the open country.

Farming and pioneering started off together. Nature was unsubdued. Men and women were poor, and life was hard at the best when necessities were counted luxuries. But those days are over on real agriculture lands. There are non-agricultural lands where country life will continue hard, but this is not American agriculture. These are not farmers. Look for American agriculture on agricultural lands and you will find it in any State of the Union. Here pioneering and farming have parted company forever. Farming will go its way on its own plan and if you look for it here, you will find it a thousand years from now. I wonder what it will be like? The people then will be our descendants; yours and mine. I wonder what they will think of us, and how they will record history between now and then? I should like to be well thought of by them, for they ought to be a very superior people, and they will be if we all be wise, for what they are then will depend not a little upon what we do now.

Let us at once set about building country homes that shall last for generations. Let us give them plenty of room, with broad lawns and much grass. Let there be some flowers and shrubbery to add a touch of brightness but above all, let there be **trees, trees, long-lived trees,** that will tell the children of the future that their grandfathers, who are we, took thought for them. Let the whole picture have its setting in a natural frame of forests and of hills, of fields where cattle be, of meadows and lakes and running water. So shall we build and in this way only leave our best thoughts behind. So will the farm at last come into its own.

6. **The country educated.** And now I come to the last, which is also the greatest of the separate features of agricultural development. I refer to the education and the culture of the men and women who shall live upon the land and till our soil—it is ours and not theirs—who shall think our thoughts as we cannot think them amid the stress and strain and struggle of the city; who shall keep the country as the great breeding ground where children may grow up into men and women without that prematurity and that dangerous sophistication that mark so many of the city born and bred.

This matter involves the whole philosophy of agricultural education, both of collegiate and secondary grade; indeed, it covers a large part of our educational effort, for it involves the education of half our population, and on this matter, I beg to speak briefly but to the point.

Agricultural education is but a feature, albeit a large and important one, but none the less it is a feature of our system of universal education, and the spirit and purpose of this system, as I understand it, is this: To so educate all men as to make them first of all self-supporting and useful contributors to some feature—no matter what—of the public good; and second, to encourage and develop in their several personalities the best that is in them as human beings and members of a rapidly advancing society, whose capabilities, if not unlimited, are as yet unknown.

Universal education is an attempt to make the most not only of the exceptional man but of all normal men, the masses of whom really represent the race, and limit its achievements and advance. As half the people live by farming, the problem of agricultural education shoulders one-half the problem of universal education, at least so far as numbers go; moreover, it is the half that will have more than its share to do in fixing the future of all classes. How now shall agricultural education be conducted so as to meet these broad requirements felt alike by farmers and all other members of our social body?

First of all, agricultural education must be so conducted as to make the farmers efficient in a business way. It has taken more than a generation to begin to find all that is involved in this feature only of education for the business of farming, and few men yet realize that, of all forms of education, that in technical agriculture is the most costly if it is made good enough to be really worth while. The young man does not want to study about cattle; he needs to study cattle themselves, a distinction not yet observed, I am sorry to say, in some of our institutions of learning.

The young man who is fitting himself for farming wants not a mass of information about present day agricultural practice: that will pass and it ought to pass. It is comparatively easy to teach but it will be out of date and gone before it can serve a man now in school, as a definite guide to procedure.

What he wants from a business standpoint is instruction in the principles involved in agriculture so far as they are known and in methods of investigation after the unknown; that he may keep himself intelligent as this great business of agricultural development proceeds before his eyes day by day. All this is extremely difficult for both teacher and student, and it involves an expense for skilled men, for equipment and for research, such as is not yet appreciated by anybody, much less by public men.

Teachers and investigators who have skill in this line are few and their services are extremely valuable; so valuable that the State which fills its quota with the best must stand ready to pay teaching salaries such as have never yet been paid. They must also devote money to equipment and facilities for research to an extent which makes all that has yet been done look microscopic and miserable—all this must be done if this development of agriculture is to proceed along all these lines as fast and as surely as it ought to proceed.

So much for the technical side; for what a man must know if he is to occupy the soil of the public domain to the best advantage to himself and to the State. Because of what I am about to say, and lest I then be misunderstood, let me remark before passing, that I am a stickler for technical education both collegiate and secondary and for agricultural re-

search of the most strictly technical character beyond anything that any man has ever yet dared to propose.

But that is not all. There remains a human side to agriculture. The farmer is not only a tiller of the soil; he is a man and a member of our permanent society; moreover, he is a voting member of the body politic. This is only another way of saying that as a man he possesses inherent privileges for himself and owes substantial duties to the community quite outside and beyond the limits of his vocation and his education therefor.

So I enter a protest against that philosophy of education and that system of schools which would by design or by necessity confine the education of a farmer or of any other man, industrial or non-industrial, to the limits of his vocational and business needs.

Every man is or ought to be bigger than his business. He does not need and should not be so educated as to live for his business; he is in business that he may live, and the large question—the largest of all questions before any man is, what shall he do with **himself?** what shall he do with the result of his earnings? how shall he justify his existence? He has a right to be so educated as to answer these questions, which are final: to be in business for something other than to conduct business or while away the time.

And so a good part of the education of the farmer as of other men is, or should be, non-vocational, and of such character as shall best suit his individual tastes and surroundings. It will be history and economics for one, philosophy for another, language and the classics for a third, music, painting or some other form of art for others—I care not what it is, only so that it is something that develops human faculties outside vocational needs, and only so it serves to broaden rather than to narrow which is the inevitable consequence of valuable technical training.

I therefore enter a plea and a demand for the broadest possible views regarding agricultural education. The farmer as a man is no different than other men, unless we make him so by our education, and if we do that, the time will come when other men of other classes will share with him the consequences of a short-sighted and inadequate system of education for industrial purposes.

A scheme for the education of farmers in separate schools is being industriously advocated these days by a class of educators who seem to feel that a little education and that almost exclusively technical is sufficient for farming purposes and that the European peasant school is our model. The advocates of this sort of school overlook certain important features of agricultural education and of the philosophy of education in general; they overlook the fact that the prospective farmer should be educated as a **man** as well as a **farmer**; in other words, that the farmer's, like every man's education should include both the technical and the non-technical; both the vocational and the non-vocational.

They overlook the fact that we cannot safely educate separate professions in separate schools, for to do so is to build up distinct classes each educated for and prejudiced in its own affairs and against the world.

They overlook the fact that there is a great body of knowledge that can form the background and the backbone of the education of all men for all pursuits, and that this is our chiefest reliance for holding our people together as one people.

They overlook the highly educational influences of mere association with other men as secured in universities which fit for all the affairs of life.

They overlook the capacity of the American secondary school to still further broaden its curriculum and widen its educational influence. This thoroughly unique American institution is abundantly able to reflect in its atmosphere and its class rooms the same cosmopolitan influence that constitutes the chief distinction of American universities.

They overlook the fact that our high schools are not "city schools" wholly given over to the affairs of the city. They are schools of the people in the best and highest sense of the term, willing and able to reflect all the major interests of the people of their respective communities.

They overlook the fact that to establish separate agricultural schools of an inferior grade for country people would fail to serve, with the education best suited to their needs, that large element of the country born that is not adapted to farm life.

They overlook the fact that the European system of education was evolved after distinct social classes had been established by generations of political and economic influences, whose repetition in America it was the special purpose of our Puritan forefathers to prevent.

They overlook the fact that in America the country people have not as yet been peasantized, but that so far we are a homogenous people except for immigration, which is a city and not a country problem.

They overlook the fact that to educate farmers by themselves in separate schools almost purely technical and distinctly inferior both in breadth and intensity to the high schools in which other classes are educated—that to do this thing is to peasantize the farmers more rapidly and more completely than they were ever peasantized in Europe or than would be possible by any other method that could be devised by the ingenuity of man.

They overlook the fact that to peasantize the schools wherein farmers may be educated is to peasantize the farmers themselves, the first effect of which is to put them out of sympathy with other classes, and the other effect will be to limit their very ability as occupants and managers of the land, and their economic efficiency as farmers, after which will be due and payable to men of all interests and all classes the social and political consequences of this proposed educational sin.

They overlook the fact that this sort of educational philosophy, extended to its conclusion, would demand that all men be educated exclusively to vocational ends each in their separate schools, out of touch and out of sympathy with the rights and ideals and ambitions of other classes, the only final consequence of which is social chaos and political anarchy, because if our people are once broken up into classes according to occupation, they can never again be amalgamated.

They overlook what has been achieved in universities like yours wherein men of all conceivable purposes are educated both separately and together in a common atmosphere of democratic wholesomeness.

This matter of the education of many men for many occupations but for one citizenship has settled itself and settled itself right on college levels in very many of our States. I congratulate you that in your State all these educational purposes and achievements are brought together in a single institution. If you will carry the same ideal into your secondary schools you will have a people with a common stock of education and a common bond of sympathy, because the different classes, having been educated together, understand each other.

I would have Americans so educated that in a company you cannot tell by the dress, the language, or the manner of a man what his occupation

is. Your educational policy will achieve all this and by it you may have all this with no detriment to business efficiency, but in the end, to its very great advantage in every way.

I have not the command of English, or else the language is unable to express my exceeding disapproval and alarm at the growing disposition to copy European peasant and trade schools and fix these alien institutions in free America, for no other purpose than to save ourselves the trouble of really studying our own educational problem as a whole and evolving for ourselves a thoroughly American system of education both vocational and non-vocational. It is our business to hold our schools together till we can work out these problems on the broadest grounds.

I speak of this at length because we in agriculture are the original and greatest sinners in respect to the separate school. It was apparently necessary a half century ago; it is necessary no longer and it is for us to lead the way back into sane and safe territory for the completion of our educational evolution.

If we hold our schools together and work this problem out, then every man can have two educations, one that is vocational, making him efficient and independent and one that is non-vocational, making him broader; and if we do not, then we shall break into many classes, some of which will have all the vocation and others will have all the culture—the rock on which nations are wrecked. So much for the country educated, and its relation to the rest of the world and to mankind.

AGRICULTURAL DEVELOPMENT A PUBLIC INVESTMENT.

The development of American agriculture, until it shall be profitable, productive and permanent and until the country shall be both comfortable and beautiful, and the people educated—all this, will cost money, stupendous amounts of it, as we are accustomed to measure values in private life, for it means a reorganization and very largely a redirection of the lives and purposes and the achievements of at least a third of our great people.

If it were solely a matter of their own concern, we might leave them to provide for this development or let matters rest as they are. But in the last analysis the development of agriculture is a public question. The farmers are interested in it, of course, and for selfish reasons, but even if they were not interested, we should still insist for public reasons that our agriculture should be developed to the utmost. The farmers will reap the first advantages of such development, to be sure, but they can realize no advantage that is not shared with all interests of all people everywhere.

The farmers have developed the handicraft of farming, or the art of agriculture if you please, about as far as experience alone can take it. What is next needed is the study and promulgation of the scientific principles involved in agricultural practice and in this field experience may correct and help to shape up results, but it cannot originate. This is the great work of the Experiment Stations as is the education in these principles the business of the Colleges.

These institutions then stand in the very forefront of further agricultural progress and the rate of this progress will depend upon the amounts of money which the public is willing to put into the effort, and the mutual inclination and ability of the universities and the farmers to go along together. In most States these relations are now of the closest and from now on agricultural development is almost wholly a matter of money.

This is evident so far as research is concerned. It is surprisingly true also as to attendance of students which is in almost direct proportion to

the amounts of money put into their instruction; moreover, speaking from the experience of Illinois, the curve of attendance follows and does not precede increase in funds. You will pardon my somewhat extended reference here to the State I represent. I do it only because I happen to be familiar with the facts for that State and because they illustrate the principle I seek to elucidate.

Illinois has led in the amounts of money which she has been willing to devote to the development of her agriculture, New York has been a close second, and other States are coming along. These amounts and their gradual growth are shown in the following table together with the increase in the faculty and the related increase in bona fide agricultural students:

Year	Funds		Faculty	Students	
	College	Station	College & Station	Registered	Graduating
90—91	$ 5,000	15,000	3	7	2
91—92	5,000	15,000	3	6	0
92—93	5,000	15,000	3	13	2
93—94	5,000	15,000	3	5	1
94—95	5,000	15,000	3	9	0
95—96	7,000	15,000	3	14	0
96—97	7,000	15,000	6	17	2
97—98	7,000	15,000	8	19	2
98—99	7,000	15,000	9	25	4
99—00	28,000	15,000	16	90	2
00—01	28,000	15,000	17	159	4
01—02	34,000	69,000	23	232	4
02—03	34,000	69,000	27	284	9
03—04	90,000	100,000	37	339	10
04—05	90,000	100,000	37	406	18
05—06	91,000	110,000	44	430	24
06—07	91,000	110,000	50	462	43
07—08	102,000	126,500	61	528	38
08—09	104,500	128,500	63	est. 550	53

This seems to be a worthy record but the amounts are grossly insufficient to meet the demands that are now upon the State University and that are increasing every day, as shown by the attendance of students and by the correspondence asking information which now amounts to approximately fifteen thousand letters a year.

The incompleteness of these funds for present needs is shown in the following list of of amounts agreed upon by the advisory committees of the farmers themselves to be asked of the present legislature:

	Annually	Biennially
For Instruction (College)	$ 70,000	$140,000
For Buildings (College and Station)		162,500
For Soil Investigations (Station)	100,000	200,000
For Crop Investigations (Station)	30,000	60,000
For Live Stock Investigations (Station)	70,000	140,000
For Dairy Investigations (Station)	51,150	102,300
For Horticultural Investigations (Station)	40,000	80,000
For Floricultural Investigations (Station)	17,500	35,000
	$378,650	$919,800

These amounts may seem large and in a sense they are, but think first of what they can accomplish for a commonwealth and what an agriculture it can build up if such a policy is instituted and pursued. But can a State endure such an expense? Again, all things are relative. The largest of these amounts is for investigation and their total is less than a cent an acre a year for Illinois lands. Surely the results of experiments are worth many times this amount aside from the fact that the increased earning power of the State because of the work of the station has already done more than pay all expenses of the Station, the whole university and of the normal schools besides. So we are asking for no new money, only for a larger share of what has already been earned.

It is significant, too, that while Chicago pays 40 per cent of the Illinois tax, she has never demurred at anything that would build up the agriculture of the State in which the prosperity of that great city so largely rests. Chicago is not frightened by the size of a proposition if only it pays in the end.

The farmers of Illinois produce every day of the year, winter and summer, in sunshine or in rain, a million and a half of dollars of new wealth. They propose this winter, with legislative consent to devote a little over a half day's work to this business of agricultural instruction and investigation, looking to the further development of our greatest producing industry. Yes, all things are relative, and it is proportions and needs rather than magnitudes that we must study.

Again these amounts are small when compared with the perfectly stupendous outlays for charitable and worthy, yet non-productive purposes. The following table shows how these amounts compare in Illinois for the current biennium:

Relative Amounts Devoted to Public Purposes. Illinois—two years—1907-8.

Productive		
Agricultural Experiment Station	$ 205,000	—1 per cent
Agricultural College	125,000	— ½ per cent
Total Agricultural Education	330,000	—1½ per cent
University	1,841,290	—9 per cent
Normal Schools (five)	941,974	—5 per cent
Total educational	3,113,264	—15 per cent
Non-productive		
Insane	4,696,000	—23 per cent
Penal	2,329,100	—12 per cent
Defective children	972,900	— 5 per cent
Other dependents	1,669,402	— 8 per cent
Total non-productive	9,667,402	—48 per cent

By this we see that Illinois is putting into the development of its agriculture less than half as much as into the education and care of its defective children. By this we see that its State University is not yet on a level with its penal institutions; that is, that our penitentiaries are now absorbing a larger share of the public resources than is devoted to higher education and research in the university and nearly as much as the university and five normal schools combined.*

*It is significant in this connection that Michigan has spent almost equal amounts of money since its admission to the Union on its great university and its penitentiary at Jackson.

By this we see that Illinois could increase her endowment for agriculture more than fifteen times and still devote less to the development of this great industry than it costs to care for her insane. By this we see, too, that 48 per cent of all our public outlay is for non-producing purposes.

Now the care of our dependents is a moral charge upon us and I would not shirk it, but it produces nothing and contributes nothing to development and I propose a new plan—the Dollar for Dollar principle. I mean, by this, that every time we expend a dollar in charity for non-productive purposes, we put down another dollar to develop the resources of the State.**

**See Peoria Address—The Development of the Natural Resources of a State.

I wish I could in some vivid way impress upon you the enormous discrepancy in this respect at present and make you understand and appreciate how exclusively, almost, our public outlays are going into non-productive channels. If, for example, we denote the amount expended in Illinois for the College of Agriculture by the distance from Boston to Utica, then the amount expended for the work of the Experiment Station would be represented by the distance from Boston to Buffalo.

But the amounts devoted to the care of defective children on the same scale would reach from Boston to Salt Lake City; those for our prisoners would pass the western coast line and reach out into the Pacific beyond the Hawaiian Islands, while the expense of the insane on the same scale would reach from Boston across our continent, across the Pacific and into the heart of Mongolia in Central Asia, or if we should go to the east it would land in almost the same spot, reaching, as it does, little over half way round the world.

If you combine all the expenditures for all non-productive dependents, it would reach around the world and overlap a thousand miles beside, against which our distance from Boston to Buffalo as representing agriculture is not even a respectable Sabbath day's journey.

With comparisons such as these it is folly to say that a State cannot afford the most liberal support of college and station work. Charity is commendable and in every way worthy but after all it is non-productive and money so expended is gone forever.

Agricultural improvement, on the other hand, is enormously productive and money expended in its development is money not expended but money invested, for the returns are both enormous and perpetual. Every bushel added to the yield of Illinois cornfields adds three million dollars to the income of the State. Every disease and every insect and fungus enemy which we learn to control saves enormous values to the country.*

*Bitter rot alone took a million dollars' worth of apples out of four counties of Illinois without warning in 1902.

Every contribution to our knowledge of soil management is of direct public benefit as surely as are improved methods of mining, and every step towards a permanent agriculture is a step along the road that must be traveled before we can talk about an assured future.

Yes, in every way money expended for agricultural development is not an outlay, it is money invested in the safest bank on earth—the soil of the commonwealth and the people on whom we must depend for its management and in whom the balance of power will always rest. Cannot any State afford to devote as much to its agriculture as to its prisoners? Can it afford not to do it?

They cannot afford not to do it, first, because agriculture needs it, and, second, because the development of our producing industries and of the pro-

ductive powers of the people is the best protection against the crushing burden of non-producing dependents.

The amounts which most States have as yet been willing to devote to agriculture are pitifully inadequate and absurdly small. This is not from prejudice against agriculture, but it is because we have not yet learned to spend money that way, just as we buy buggies freely but cannot generally "afford" bath-rooms.

The agricultural problems of Maine are as many and as diverse as are those of Texas or of Illinois, and their safe solution is of more immediate and perpetual public concern than any other question of public policy. I therefore close with the thought of dollar for dollar; that is, a dollar for development against every dollar needed for charity, and as a corollary in behalf of agriculture, I propose as a temporary policy that as much be devoted to the development of our agriculture as to the support of our penitentiaries.

I beg of you in the strongest terms to study these questions in all their meaning both now and in the future. And when you see their full significance and real bearing, be outspoken and insistent that your commonwealth at once adopt policies that shall put agriculture on a new basis both economically and educationally. Ask it; urge it; plead for it; demand it, for it is yours.

This is agricultural development and the meaning of it.

MAINE FARMER PRESS, AUGUSTA